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ABSTRACT

Designed for use by local curriculum committees who are implementing computer education components of their school districts' multicultural, nonsexist education plans, this guide provides a list of definitions, a discussion of the rationale and philosophy of multicultural, nonsexist education, and the text of the legal authority for the use of such an approach by school districts. Four goals are suggested as a model for this type of program, and each goal is accompanied by a set of objectives specifically pertaining to computer education. A self-evaluation checklist is provided for use as a general guide in reviewing a program to determine how consistent it is with the basic concepts of multicultural, nonsexist education. Sections of the checklist relate to curriculum structure, curriculum content, instructional materials, and teaching strategies. An annotated bibliography lists 27 recommended titles for computer education teachers and a resource organization list provides the names, addresses, and telephone numbers of 18 agencies or persons that may provide assistance, ideas, and information to schools striving to implement multicultural, nonsexist computer education programs. (DJR)

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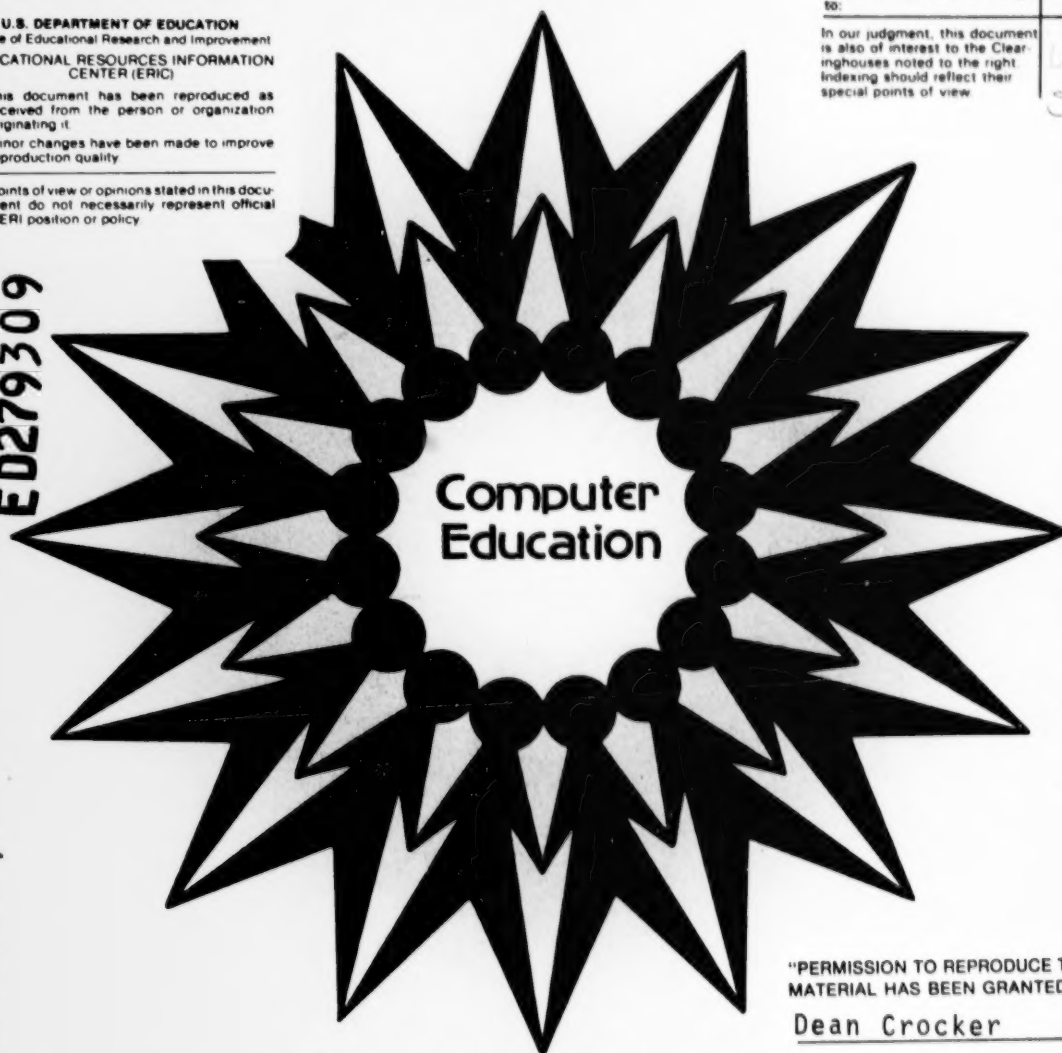
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Definitions

1. **Multicultural Education:** Educational processes which promote an understanding and appreciation of the cultural diversity of our pluralistic society. Within the total multicultural educational process, special emphasis shall be placed on the following groups: Asian American, Black American, Hispanic American, Native American and the handicapped. The educational program shall be characterized by practices which provide equal opportunity for all participants regardless of race, color, age, national origin, religion or handicap.
2. **Nonsexist Education:** Educational processes which foster the knowledge of and respect and appreciation for the historical and contemporary contributions of men and women to society, as well as educational processes that reflect the wide variety of roles open to both men and women. The educational program shall be characterized by practices which provide equal opportunity to both sexes.
3. **Curriculum Structure:** Administrative processes and decisions that have an impact on the computer education program.
4. **Curriculum Content:** The concepts, processes, facts, definitions and values taught in the computer education program.
5. **Instructional Materials:** All objects used during the teaching process in the computer education program:
 - **Courseware:** Instructional materials for the computer including the program itself, the teacher guides and other print materials needed to deliver lessons in a classroom.
 - **Hardware:** The computer, disk or tape drive, keyboard, video display terminal and printer.
 - **Software:** Computer programs, instructions and procedures that control the hardware of the computer system.

Rationale and Philosophy

All students should see themselves positively reflected in the curriculum regardless of their sex, race, cultural background or disability. Students who do not see themselves reflected often feel alienated from the educational process and may soon question their own worth. Students should also see the contributions and perspectives of the disabled, other racial and cultural groups, and the other sex reflected in the curriculum. Students who are not exposed to other groups through direct contact or indirectly through their educational program can develop an artificial sense of self or group superiority (the "we did it all" syndrome). This can lead to patronizing attitudes toward those groups. If this feeling is reinforced across time, it can lead to prejudiced attitudes and behaviors in adulthood.

The multicultural, nonsexist curriculum is based on the theory of cultural pluralism. This theory celebrates the diversity that characterizes a country in which 300 American Indian nations joined with women and men from every continent and country on this planet. It shows cultural and sex-role diversity as strengths that enrich the United States. It is a curriculum in which all citizens can see themselves and others reflected.

These MCNS concepts have special implications for computer education. Applications of technology are burgeoning in all areas of life from arts to airlines to agriculture. Today's students, whether they choose technical or nontechnical careers, must be able to function in a technologically oriented society. Given this central role of technology, it is important that all students receive the maximum benefits of computer education.

Computer literacy has become a goal widely subscribed to by schools, but growing enrollment and participation data shows that the typical computer user, owner, camp-goer, summer session student, club member, programming student, programmer, analyst, engineer and graduate student is a relatively affluent white male. By virtue of limited access to computers, or stunted expectations — their own or other's — some students are being left out or left behind. Students

who have historically benefited the least from schooling — minorities, the disabled, the poor and female — are the same students who are in danger of becoming technologically disadvantaged. Biases that have impacted the curriculum in the past continue to affect the computer curriculum with the result that learning is less in both amount and kind for these students. More than just a case of history repeating itself, this has the effect of raising the ante because shortfalls in "the basic skills of the future" will have serious educational consequences. It is important that the computer curriculum be tied to our national ideal of equal educational and economic opportunity for all.

Research suggests some factors to be considered when addressing computer equity. One is the effect in the minds of students, staff and parents of the introduction and placement of computers, both physically and in the curriculum. It is important that computers used in education be integrated across the entire K-12 instructional program. Many student decisions about computers are affected by how closely they are associated with mathematics and science. An educational context in which computers are not seen as being in the sole domain of mathematics, science or any single curriculum area, and which employs graphic and linguistic as well as mathematics-linked approaches, will help students see broader possibilities for themselves relative to computers.

The biases inherent in the cultural environment of computers should also be considered. Outside of school, students are exposed to computer advertising aimed mostly at boys or their parents and to video games that feature mainly males engaged in violent, aggressive and competitive pursuits. Much educational software echoes this tendency and some contains bias toward minority groups as well. The result is that most students do not see themselves reflected in either the societal or the educational computer curriculum. They need a boost from school intervention strategies to change this perception. Computer-related activities and skill development can be used across the curriculum with very young

children to dispel biases before they become crystallized. Programming activities which give students power over the equipment can be taught to all elementary students. Information about computer applications in the world of work should be a continuous curriculum strand, and real-life computer applications at school and at home should be a part of the program to give students a personal sense of the value of computers. Courseware should be scrupulously evaluated. Among the criteria used should be those which examine the fair and accurate representation of both genders, minority groups and the handicapped. Both elementary and secondary staffs need to learn about the causes of computer avoidance and apathy, why they are found (and forgiven) more often among female and minority students, and how they can be unlearned.

Another factor to address in equitable computer use is that of interactions among students, and between teachers and students. Teachers can take care not to telegraph different expectations for males and females, minority and non-minority and handicapped and non-handicapped students. They can monitor their questions and assignments so that no gender or cultural group is unconsciously given higher- or lower-level challenges based on stereotyped assumptions about student capabilities or limitations. Similarly, they can intervene so that no group dominates computer use or instructional time. Schools can try to ensure that the staff involved with computer learning includes some female, minority and handicapped role models, and that "computer

experts" brought in from the community also represent cultural diversity and nontraditional workers. Content about the history and ethical use of computers should include the contributions and viewpoints of women and minorities.

Using a variety of approaches is important in any educational setting. In computer activities, there are observable tendencies among many female and minority students to prefer practical applications and cooperative, people-oriented, interactive approaches. These kinds of approaches can be included to the benefit of all students.

The age of information demands that we act today on what projections for tomorrow tell us. According to futurists, most of the jobs in which our students will work do not yet exist; they will emerge with the technology and most will involve computer use in some way. We should act to make sure that all students regardless of race, sex or handicap have the opportunity and encouragement to learn to control computers and related technologies. But this is not enough. Other observable trends support the adoption of a multicultural, nonsexist approach to computer learning. We are an increasingly pluralistic nation operating within a global society. The roles of women and men continue to evolve and our society is becoming based more on networking, participation and cooperation (and less on hierarchies). All these trends suggest that the ability to manage change and the ability to work, learn and live with diverse men and women will also be critical skills in the context of tomorrow.

The Legal Authority

Iowa Code (Sec. 257.25, Paragraph 1)

The State Board shall promulgate rules to require that a multicultural, nonsexist approach is used by school districts. The educational program shall be taught from a multicultural, nonsexist approach.

Iowa School Standards 670—3.5(257)

3.5(3) Classroom instruction in each area of instruction shall be from a multicultural, nonsexist approach in each school district, kindergarten through grade twelve.

3.5(5) BOARD OF DIRECTORS RESPONSIBILITY FOR ASSURING MULTICULTURAL NONSEXIST APPROACHES TO EDUCATIONAL PROGRAMS. Each board shall develop a written plan of action within one year of the effective date of this rule.* The plan shall include a specific timeline for implementation, not to exceed five (5) years, for achieving and maintaining a multicultural, nonsexist educational program. A copy of the plan shall be filed locally in a readily available form and location, as evidence of compliance with the provision of the law.

3.5(5)c The multicultural, nonsexist educational plan shall include:

- (1) Specific goals and objectives with implementation timelines for each component of the educational program;

- (2) A description of the inservice activities planned for all staff members on multicultural, nonsexist education;
- (3) Evidence of systematic input by men and women, minority groups and the handicapped in the development and implementation of the plan, and that in schools where no minority students are enrolled, minority group resource persons shall be utilized at least annually;
- (4) A description of the periodic, ongoing system to monitor and evaluate the plan.

3.5(6) Instructional program for each subject. Classroom instruction in each subject taught in the schools shall be based on careful planning. The board shall require that a resource guide be developed for each instructional sequence reflecting multicultural, nonsexist approaches, and it shall include a statement of its educational purposes; suggested instructional activities, materials, and content; and a description of the performance criteria used in evaluating each pupil's progress during the educational sequence.

The curriculum structure, content, instructional materials and teaching strategies shall reflect the contributions and perspectives of women and men and diverse racial/ethnic groups. Where sex and/or cultural-racial stereotyping exists in instructional materials, it shall be brought to the attention of the students and supplementary materials shall be used to offset the stereotyping. Multicultural, nonsexist instructional materials shall be adopted at the first opportunity to do so. The curriculum shall include activities which promote an awareness of sexism and cultural, racial bias in the English language.

*Effective date of rule: July 16, 1979.

Goals and Objectives

Multicultural, nonsexist education concepts should be a visible, integral part of computer education programs. They should be visible in goals and objectives, curriculum guides and daily lesson plans. The following is suggested as one model for the multicultural, nonsexist education program. Each goal is accompanied by a set of objectives specifically pertaining to computer education. Activities related to each of the objectives should be integrated into each grade level of the program.

Goal 1:

To help students develop positive and realistic self-concepts regardless of race, sex, cultural background or disability. This self-concept should be based on understanding and valuing their own personal and group identities, as well as a greater awareness of their values and the relationship of those values to their everyday decisions and actions.

Objective A: Students will explore and define their personal and cultural values relative to computers.

Objective B: Students will take part in a computer learning environment which gives all students a feeling of inclusion and worth regardless of sex, cultural group or disability.

Objective C: Students will develop a positive attitude about individual ability to control the computer unimpeded by stereotypes based on race, sex, culture or disability.

Goal 2:

To help students understand that both sexes, diverse racial/cultural groups and the disabled have made valuable contributions to the heritage of the United States and that this diversity enriches and strengthens our country. Inherent in this goal is the exposure of students to a broad range of career roles and lifestyles regardless of their sex, race, cultural heritage or disability.

Objective A: Students will demonstrate an awareness of the contributions that diverse racial/cultural groups, men and women, and the disabled have made to computer technology in Iowa, the United States and the world.

Objective B: Students, regardless of race, sex, culture or disability, will explore in unbiased ways the qualities, skills and preparation needed for a broad range of computer-related careers.

Goal 3:

To help students understand that all persons have common needs, feelings and problems, while at the same time stimulating their respect for the uniqueness of each individual and cultural group. Inherent in this goal is the awareness that racism, sexism, cultural bias, and bias toward the disabled are social phenomena.

Objective A: Students will be able to identify and refute biases in courseware, advertisements, etc.

Objective B: Students will be aware of societal biases as variables in understanding relationships between society and computers.

Objective C: Students will understand the potential value of computers for meeting both universal human needs and the unique needs of diverse groups and individuals.

Objective D: Students will understand that significant differences, based on gender and cultural groupings, exist in opportunities for attaining computer literacy.

Objective E: Students will know that sex role and cultural conditioning may bring individuals to the computer with different learning style strengths.

Objective F: Students will understand that computer terminology is a "language" that can work to include or exclude people.

Goal 4:

To help students develop positive interpersonal and intergroup communication techniques, as well as a motivation to play an active role in the solution of societal conflicts. Inherent in this goal is the understanding that present societal conflicts are a condition of centuries of cultural and group conditioning, and that improved human relations depends upon increased intergroup and interpersonal communication, understanding and cooperation.

Objective A: Students will comfortably participate in group activities which build trust and cooperation among diverse groups and between the sexes and which use the positive contributions of all individuals and groups to accomplish common tasks.

Objective B: Students will recognize that technological progress can create as well as solve problems, and will be motivated to become actively involved in the discussion and resolution of present and future issues related to the techno-society.

Objective C: Students will know their duties and privileges, rights and responsibilities as members of a multicultural, nonsexist information society.

A Self-Evaluation Checklist

School districts in Iowa are being asked to review their curricula to determine the degree to which they are consistent with the basic concepts of multicultural, nonsexist education. This checklist is a general guide for looking at the computer education curriculum, K-12.

The make-up of the instructional staff and the classroom enrollments have major implications for the strategies used in multicultural, nonsexist education programs. Districts with stereotypical staffing patterns (examples: male administrators, all female elementary instructors, all white staffs, all male computer education instructors, etc.) should build objectives for change into their employment policies. Scheduling traditions or policies which may reinforce or cause sex-typed class enrollments (80 percent or more of one sex) or minority isolation should be changed.

A. Curriculum Structure

1. Are there diverse role models (male-female, diverse cultures/races) teaching computer education at both the elementary and secondary levels? Yes_____ No_____
 - a. If the answer to question one is no, what caused this to happen? Are there long-range strategies for changing this pattern?
 - b. What impact does this have on the strategies that will be used to achieve multicultural, nonsexist computer education objectives?
2. Are there disabled employees on the school district staff who may serve as role models for students? Yes_____ No_____
3. Are there diverse student enrollments (male-female balance and ethnic and racial diversity) similar to that found in the district in all elementary and secondary computer education units? (Example: Boys are equally represented in data and word processing; girls in programming.) Yes_____ No_____
 - a. If the answer to question three is no, what caused this to happen? Can this be changed?
 - b. If the answer to question three is no, what impact does this have on the strategies used to attain multicultural, nonsexist computer education curriculum objectives?
4. Are scheduling practices avoided which may result in sex-typed enrollments (80 percent or more of one sex) or in minority/cultural isolation (where minority enrollment is significantly greater or less than it is in the district or in the building where the classes are being held)? Yes_____ No_____
5. Has there been meaningful interaction between the computer education teachers and the personnel in the district who are responsible for implementing multicultural, nonsexist education? Yes_____ No_____

6. Has inservice on multicultural, nonsexist approaches to the computer education curriculum been provided for all elementary and secondary teachers? Yes_____ No_____
7. Have the district administrators incorporated multicultural, nonsexist education concepts into all staff evaluation procedures? Yes_____ No_____
8. Have all prerequisites for computer classes and activities been evaluated to ensure that they are directly linked to success? Yes_____ No_____
9. Are detailed course descriptions available early-on to students which make it clear that computer courses are equally important and relevant for all students? Yes_____ No_____
10. Are computer club activities scheduled at a time which encourages the participation of all students? Yes_____ No_____
11. Does the district monitor participation in computer clubs and activities to determine numbers of males and females, minority and nonminority, handicapped and nonhandicapped students taking part? Yes_____ No_____
12. Are computers located near centers of activity and in various departments where they are most accessible to all students: a) for course work? b) during free time? c) after school? Yes_____ No_____
13. Have students been surveyed about their computer interests and concerns? Yes_____ No_____
14. Does the school actively encourage underrepresented students to pursue use of computers: a) in free time? b) after school? c) in upper level courses? Yes_____ No_____
15. Do special education, LEP and mobility-impaired students have access to computers? Yes_____ No_____

B. Curriculum Content

1. Does the written computer education curriculum set equity as a priority? Yes_____ No_____
2. Does the computer education curriculum include units/activities which explore the importance in nonstereotypic ways of computer competencies in broadening career options and enhancing future earning capacity? Yes_____ No_____
3. Does the curriculum include units/activities which cause students to become aware of their attitudes toward computers, and lessen the anxiety some students, especially female and minority students, might experience and alleviate "hardware anxiety" by giving students power over the machine? Yes_____ No_____
4. Does the curriculum include activities concerning the history and ethics of computers which feature the contributions and perspectives of women and minorities and the disabled? Yes_____ No_____
5. Does the curriculum include instruction in analyzing software and advertising for culture, sex and handicap basis? Yes_____ No_____

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| 6. Does the curriculum avoid a preponderance of software based on aggression and competition? | Yes_____ No_____ |
| 7. Does the curriculum include software for instruction in non-technical areas such as fine arts, language arts and social studies? | Yes_____ No_____ |
| 8. Does the curriculum avoid software which rewards violence? | Yes_____ No_____ |
| 9. Does the curriculum include software allowing students to work cooperatively? | Yes_____ No_____ |
| 10. Does the curriculum include real-world applications such as cataloging books, designing newsletters, simulating school "traffic" problems, etc. | Yes_____ No_____ |
| 11. Does the computer education curriculum ensure that all students learn to use the computer in a variety of ways? | Yes_____ No_____ |

C. Instructional Materials

- | | |
|---|------------------|
| 1. Using <i>written</i> criteria, courseware is evaluated for bias in: | |
| • language | Yes_____ No_____ |
| • text | Yes_____ No_____ |
| • graphics | Yes_____ No_____ |
| 2. Some software is selected which encourages cooperative approaches. | Yes_____ No_____ |
| 3. Software avoids using aggression, extreme competition and violence for instruction or reward. | Yes_____ No_____ |
| 4. Software avoids underrepresenting females and minorities in text or graphics. | Yes_____ No_____ |
| 5. Software avoids stereotyping on the basis of race, sex and disability. Minority, disabled and female students are shown in a variety of roles relative to action, power and authority. | Yes_____ No_____ |
| 6. Supplementary materials, bulletin boards, classroom displays, etc. reflect our multicultural society and roles open to both females and males? | Yes_____ No_____ |
| 7. Male pronouns are not used to describe non-human objects; job titles are gender-free. | Yes_____ No_____ |

D. Instructional Strategies

- | | |
|--|------------------|
| 1. During computer times, no group or person is allowed to dominate. | Yes_____ No_____ |
| 2. Representative numbers of handicapped, females and minorities are used as demonstrators, tutors, assistants, team leaders, etc. | Yes_____ No_____ |

3. All students regardless of race, sex or disability learn to use the computer in a variety of ways, such as drill and practice, simulations, higher-order skills, word processing, recordkeeping and graphics. Yes_____ No_____
4. Computer time is not used for reward or punishment for individuals or groups. Yes_____ No_____
5. Community resource people including women, minority individuals, and people with disabilities are role models used in the classroom and on field trips. Yes_____ No_____
6. Teachers use language which allows students to see an array of options for themselves and others in education and career choice. Yes_____ No_____
7. Teachers intervene when students engage in namecalling based on race, sex or disability. Yes_____ No_____
8. Teachers have alerted counseling staff to MCNS guidance techniques relevant to computer coursework, activities and career preparation. Yes_____ No_____
9. Teachers formally and informally communicate to parents the importance of multicultural, nonsexist considerations in computer education. Yes_____ No_____
10. Staff calls student attention to computer-generated materials found in the classroom, home and community. Yes_____ No_____
11. Staff contacts software developers about the importance of unbiased software. Yes_____ No_____
12. Staff explains the practical value of most computer activities. Yes_____ No_____
13. Staff assigns students to instructional pairs or groups based on instructional goals, rather than allowing students to self-segregate. Yes_____ No_____
14. Staff acknowledges and rewards both group and individual accomplishments. Yes_____ No_____
15. Staff designs assignments so that all students are involved and become equally skilled in various operations and roles. Yes_____ No_____
16. Staff expects the same behaviors and sense of purpose from all students. Yes_____ No_____
17. "Recreational" computer games are not used at school. Yes_____ No_____
18. Staff works to ensure that students who are the most "school-dependent" (e.g. those without home computers) for acquiring computer skills receive ample encouragement, access, remediation and time. Yes_____ No_____
19. Staff examines the positive or negative impact of such terms as "computer jock," "computer nerd" and "hacker" on all students. Yes_____ No_____

Bibliography of Resource Materials

The following materials are resources for teachers involved with computer learning who are striving to implement multicultural, nonsexist education concepts. They are primarily teacher resources, but include materials or activities that can be used in the elementary and secondary classroom.

Aspy, D.N., Aspy, C.B. and Roebuck, F.N., Editors, *The Third Century In American Education*, Human Resource Development Press, Inc., 22 Amherst Road, Amherst, MA 01002. (413) 253-3488. 1984. \$25.00.

This future-focused book is based on the premise that we all must ultimately enter the Information Age both intellectually and emotionally and that the promise for humankind in this change is great. This is a thorough treatment of the implications for education in an informational era.

Bakon, Cynthia, et al. "Computer Fear," *Educational Leadership*, Journal of the Association for Supervision & Curriculum Development, September 1983, Volume 41 No. 1. 225 N. Washington Street, Alexandria, VA 22314. (703) 549-9110. \$3.00 single copy. Describes the male-female gap in participation in elective computer classes and explains why and how schools should act to ensure sex equity in computer programs.

Bartusek, Lisa. "Keeping Things Equal at the Computer Terminal," *DPI Dispatch*, Volume 15, Number 2, October 1985. Publications Section, Iowa Department of Public Instruction, Grimes State Office Building, Des Moines, IA 50319. (515) 281-3038. Describes the IDEAS for Equitable Learning project of the American Institutes for Research (AIR). The project identified and documented 12 major barriers to computer equity and developed a kit of materials for schools to use in overcoming each barrier.

Black Americans. Disk for Apple II, IIc or IIe and one disk drive. Hartley Courseware, Inc., 133 Bridge, P.O. Box 419, Dimondale, MI 48821. \$39.95.

This disk can be used in elementary-middle school to reinforce a unit emphasizing the contribution of Black Americans to their nation's history or as a method to stimulate research.

Campbell, Patricia B. "The Computer Revolution: Guess Who's Left Out?" *Interracial Books for Children Bulletin*, Vol. 15, No. 3, 1984. Council on Interracial Books for Children, 1841 Broadway, New York, NY 10023, (212) 757-5337. \$2.50 single copy.

Explores equity issues in computer education and describes approaches that have worked.

Campbell, Patricia B. "Preliminary Guidelines for Selecting Computer Software." *Interracial Books for Children Bulletin*. Vol. 15, No. 5. Council on Interracial Books for Children, 1841 Broadway, New York, NY 10023. (212) 757-5337. \$2.50 single copy.

Provides excellent guidance for evaluating courseware for sex, race and other forms of bias. Includes as criteria the degree of empowerment provided to the users as well as the degree to which decision-making is encouraged by the product.

Catalog of Products and Services. Council for Exceptional Children. 1920 Association Drive, Reston, VA 22091-1589. (703) 620-3660.

The catalog lists several moderately priced microcomputer resources for special educators including: *Microcomputer Resource Book for Special Education*, *Special Ware Directory* and *Handbook of Microcomputers in Special Education*. Call or write for free catalog.

Christie, Patricia A. "LOGO in Computer Education for Women," available through the Educational Equity Section, Iowa Department of Education, Grimes State Office Building, Des Moines, Iowa 50319. (515) 281-3786. Free. The author, an educational equity consultant with the Montana Office of Public Instruction, does LOGO workshops with teachers. This paper discusses the benefits of LOGO in promoting the involvement of women and girls in computer learning, mathematics and

science.

Computer-Disability News. The National Easter Seal Society, 2023 West Ogden Avenue, Chicago, IL 60612. (312) 243-8400. Free.

A computer resource quarterly for people with disabilities.

Computing Teacher, April, 1984. Volume XI, No. 8. Journal of the International Council of Computers in Education. ICCE, University of Oregon, 1787 Agate Street, Eugene, OR 97403-1923. \$3.50.

This theme issue, "Computer Equity," is devoted to providing an overview, current research and practical ideas for fostering computer equity. Ask for "Equity Issue." Save a \$2.50 processing charge by including payment with order.

Denbo, Sheryl, comp. *The Computer Explosion: Implications for Educational Equity.* The Mid-Atlantic Center for Race Equity, American University, Massachusetts and Nebraska Avenues NW, Washington, DC 20016, (202) 686-7555. May, 1983. Free.

A compilation of writings concerning computer equity. Good resource for an overview and for equity strategies.

Equal Play, Volume IV, Numbers 1 and 2, Spring/Fall 1983. Women's Action Alliance, Inc., 370 Lexington Avenue, New York, NY 10017. (215) 532-8330. \$2.50.

This quarterly resource magazine is for adults who are guiding young children beyond stereotypes. This issue focuses on computer equity. It includes features on research, updates on education projects, a resources section containing books for children and educators, periodicals, bibliographies, information on programs, centers and services. Also included is "Scientific Superstars" - brief biographies of high-achieving women in math, science and technology past and present.

Goldreich, Gloria and Esther. *What Can She Be? A Computer Scientist.* Lothrop, Lee and Shepard Books, 105 Madison Avenue, New York, NY 10016. (212) 889-3050. 1979. \$9.95. One of a series of books for students in grades 1-5, each of which interviews a woman about her work. Contains many photographs.

Others in the series are: architect, farmer, lawyer, legislator, musician, newscaster, police officer and veterinarian.

Kogelman, Stanley and Warren, Joseph. *Mind Over Math.* The Dial Press, 1 Dag Hammarskjold Plaza, New York, NY 10017. (212) 605-3000. 1978. \$3.95.

Computer avoidance is often an extension of mathematics avoidance. This book, written by two prominent mathematicians, is based on their experiences in leading groups to help people overcome math anxiety. It provides some interesting insights and strategies for teachers and counselors who may notice symptoms in themselves or their students.

Metzger, Merrienne, Oullette, David and Thormann, Joan. *Learning Disabled Students and Computers: A Teacher's Guidebook.* International Council for Computers in Education, 135 Education, University of Oregon, Eugene, OR 97403. 1983. \$2.50 prepaid.

A booklet written to demystify computers and present them as efficient aids in meeting the needs of learning disabled students. A useful reference section is included.

Nave, Gary, Browning, Philip and Carter, Jeri. *Computer Technology for the Handicapped in Special Education and Rehabilitation: A Resource Guide.* International Council for Computers in Education, 135 Education, University of Oregon, Eugene, OR 97403. 1983. \$7.00.

This resource includes more than 180 annotated citations, over half dated since 1980. Entries focus on computer-assisted instruction and computer-managed instruction.

Off and Running. EQUALS in Computer Technology program. Lawrence Hall of Science, University of California, Berkeley, CA 94720. (415) 642-1823. 1985. \$14.50.

A collection of stories and activities designed to help develop "computer readiness," without necessarily using a computer. The activities teach important computer concepts and skills and help connect them to the "real world." (Also see EQUALS under Resource Organizations section.)

Papert, Seymour, *Mindstorms: Children, Computers and Powerful Ideas*. Basic Books, Inc., 10 East 53rd St., New York, NY 10022. (212) 207-7292. 1982. \$6.95, paper.

This book presents a forward-looking view of computer use in education. The computer language LOGO is described in detail.

Parisi, Lynn. *Sex Equity in Computer Education: Concerns for Social Studies*. Clearinghouse for Social Studies/Social Science Education. 2805 East 10th Street, Bloomington, Indiana 47405. (812) 335-3838. ERIC Digest No. 15, August, 1984. \$.50.

This digest describes the problem of inequity in computer education and some probable causes of sex bias. It provides a rationale for social studies as a vehicle for addressing computer equity and some suggestions for how computers can be effectively used in social studies.

Programming Equity Into Computer Education: Today's Guide to the Schools of the Future. PEER, 1413 K Street NW, 9th Floor, Washington, DC 20005. (202) 332-7337. 1985. \$9.95.

This kit was developed as a tool to help parents, community groups, administrators, teachers and school boards assess and work toward computer equity. Included is an assessment guide with forms and questions to aid in evaluating the policies and practices of the district. Strategies for change are given and an outstanding bibliography of resources is included. An excellent, comprehensive resource.

Sanders, Jo Shuchat and Stone, Antonia. *The Neuter Computer: Computers for Boys and Girls*. Women's Action Alliance, Inc., 370 Lexington Avenue, New York, NY 10017. (212) 532-8330. 1986.

A manual of field-tested strategies for promoting computer equity in middle school settings. Call or write for ordering information on this brand-new resource.

Shubert, Jane, et al. *IDEAS for Equitable Computer Learning*. American Institutes for Research, P.O. Box 1113, Palo Alto, CA 94302. (415) 493-3550. 1985. \$8.75.

This kit helps educators improve computer learning opportunities for all students. It is

the product of a research study which identified situations and behaviors that impeded student computer access and use. Strategies for overcoming the impediments are given for elementary through high school. A K-3 "Computer Readiness" component is included. This is an important resource for fostering computer equity.

Strauss, Ned and Walther, Lynn. *The Catalyst Training Package: Increasing Options for Rural Youth*. WEEA Educational Development Center, Inc., 55 Chapel Street, Newton, MA 01260. (800) 225-3088. 1982. \$11.00.

Contains training programs for educators, students and community residents for examining career choices and eliminating stereotypes.

Wallace, Joy and Rose, Ray. "A Hard Look at Software: What to Examine and Evaluate (With An Evaluation Form)." *Educational Technology*, Vol. 24, No. 10, October 1984. 720 Palisade Avenue, Englewood Cliffs, NJ 07632. (201) 871-4007. \$6.00 single copy.

Helps build a knowledge base for evaluating software for equity considerations.

What Will Happen If . . . Young Children and the Scientific Method. Educational Equity

Concepts, Inc. 440 Park Avenue South, New York, NY 10016. (212) 725-1803. 1984. \$10.95.

This early childhood resource emphasizes visual-spatial, problem solving and creative thinking skills and helps children to understand technology in the world around them. Includes a section on machines and technology.

Winkle, L.W. and Mathews, W.M. "Computing Equity Comes of Age," *Phi Delta Kappan*, January 1982, pp. 314-315.

This article gives a capsulized history of computer education, describes the problems sex bias and stereotyping place in the way of computer equity and gives suggestions for eliminating barriers and encouraging females. A good, readily accessible article.

Women in History. Disk for 48K Apple II, IIc or IIe and one disk drive. Hartley Courseware, Inc. 133 Bridge, P.O. Box 419, Dimondale, MI 48821. \$39.95.

From the Medalist Series, this disk can be used in elementary-middle school to reinforce a unit emphasizing the contributions of women to world history or as a method to stimulate research.

Resource Organizations

The agencies or persons listed below are just a few of those which may provide assistance, ideas and information on resources to school districts that are striving to implement multicultural, nonsexist computer programs.

Bilingual Education Consultant, Alternate Programs Section, Curriculum Division. Iowa Department of Education, Grimes State Office Bldg., Des Moines, IA 50319. (515) 281-3264.

The bilingual education consultant provides technical assistance to school districts who are working with limited-English speaking children.

Center for Educational Experimental Development and Evaluation. 218 Lindquist Center, University of Iowa, Iowa City, IA 52242. (319) 353-4200.

The Center was funded to develop materials to assist in the education of limited English speaking students. Mathematics and science materials are available in the Spanish, Laotian, Vietnamese, Cambodian and English languages.

Council for Exceptional Children. 1920 Association Drive, Reston, VA 22091. (703) 620-3660.

The Council is an excellent resource agency for educators who want to increase student awareness about disabled persons. The Council has recently established the Center for Education Technology Exchange which

communicates information by phone, mail and electronic network about innovations in technology and applications in the education of students with disabilities. Call the number above or (800) 345-TECH.

The Educational Equity Section of the Iowa Department of Education. Grimes State Office Building, Des Moines, Iowa 50319.

The Educational Equity Section is funded to provide assistance to Iowa educational agencies in the areas of race desegregation, sex desegregation, multicultural curriculum, nonsexist curriculum, affirmative action and human relations.

EQUALS in Computer Technology, Lawrence Hall of Science, University of California, Berkeley, CA 94720. (415) 642-1823. Key Gilliland, director.

The EQUALS project promotes the participation of females and minorities in mathematics, science and computer learning. Through workshops for educators, students and parents and through publications, they teach and disseminate proven, successful equity strategies. The focus of the two- to five-day "EQUALS in Computer Technology" workshops is to train educators to use these strategies and materials to promote the equitable use of computers in the school system. Call or write for descriptive information about this and other equally valuable EQUALS workshops and products in mathematics, science and computer technology.

Equity Through Electronic Education Project

coordinated by the EPIE (Educational Product Information Exchange) Institute. Contact Richard Wenn, Box 786, Kenwood, CA 95452. (707) 833-4621 or Compu Serve WCCIII.

A national clearinghouse and electronic network to facilitate a flow of information and practices about cooperative school and home programs dealing with equitable access to computers. Educators who want information about what school districts are doing about computers and equity, or who would like to report on what their district is doing and join an electronic network of like-minded districts, should contact the project.

International Council for Computers in Education (ICCE). 135 Education, University of Oregon, Eugene, OR 97403. (503) 686-4414.

A professional, non-profit organization for people interested in instructional computing at the pre-college level. Publishes a number of booklets as well as nine issues annually of *The Computing Teacher* magazine.

Human Relations Staffs in Education Departments of Iowa's Colleges and Universities.

Each college and university in Iowa that prepares teachers for the classroom is required to have a human relations program. These programs deal with issues related to sexism, racism, ethnocentrism and handicappism, and they may be able to provide services to school districts on educational equity issues.

Iowa Area Education Agencies. Multicultural, Nonsexist Education Coordinators.

The area education agencies have some

capacity for providing assistance to school districts as they work toward educational equity goals. Each agency has a contact person for multicultural, nonsexist education. Iowa educators are encouraged to contact their local area education agency contact person for assistance.

MCREL Sex Equity Center. 4709 Bellevue Avenue, Kansas City, MO 64112. (816) 756-2401.

The Sex Equity Center responds to training and technical assistance needs of educational agencies in Iowa, Nebraska, Kansas and Missouri in the areas of sex desegregation, nonsexist curriculum and human relations.

The Midwest National Origin Desegregation Assistance Center. School of Education, University of Wisconsin-Milwaukee, 453 Enderis Hall, P.O. Box 413, Milwaukee, WI 53201.

This center is one of nine "Lau" centers in the United States funded by the U.S. Office of Education under Title IV of the Civil Rights Act of 1964. The Center assists school districts in providing whatever special services are necessary to ensure that a student whose dominant language is not English is not limited in participating in educational activities by a lack of English proficiency. The Center serves 10 Midwest states including Iowa.

The Midwest Race Desegregation Assistance Center. College of Education, Bluemont Hall, University of Kansas, Manhattan, KA 66506. (913) 532-6486.

The Midwest Center is a federal agency which

provides assistance to school districts in Iowa, Nebraska, Kansas and Missouri in the areas of race desegregation, multicultural curriculum and human relations.

National Center for Computer Equity, Project on Equal Education Rights. NOW Legal Defense and Education Fund, 1413 K Street, NW, 9th Floor, Washington, DC 20005. (202) 332-7337. The National Center for Computer Equity functions both as a national clearinghouse and a forum for the exchange of ideas and programs on equity in computer education. Its purpose is to link educators, parents, policymakers, business leaders and researchers in defining and resolving problems of discrimination and exclusion affecting girls of all ethnic and racial groups, including disabled girls, in computer education and vocational training. The Center publishes computer equity reports on a broad range of computer equity issues; and computer equity action kits for use in local school districts and communities. In addition, the Center is now actively soliciting programs that are successfully providing bias-free computer-based education.

National Clearinghouse For Bilingual Education. 1300 Wilson Boulevard, Suite B2-11, Rosslyn, VA 22209. (703) 522-0710 and (800) 336-4560. Anyone interested in the education of language-minority students may use the services of this agency. Call or write to ask

for informational brochures or to state your specific need directly. In order to receive the NCBE newsletter and other publications, ask for the Clearinghouse Products List.

The Nonsexist Child Development Project. The Women's Action Alliance, Inc., 370 Lexington Avenue, Room 603, New York, NY 10017. (212) 532-8330.

The project is a national resource center for educational equity at the early childhood level. Among the items available free of charge are: "Resources for Today's Children," a bibliography of materials including audiovisuals, photos, posters, games, puzzles, etc.; "Bibliography of Suggested Readings" and "Bibliography of Materials for Equal Early Education."

Racism and Sexism Resource Center for Educators. Council on Interracial Books for Children, CIBC Resource Center. Room 300, 1841 Broadway, New York, NY 10023. (212) 757-5337.

The Resource Center publishes and distributes teaching materials to combat sex role and cultural stereotyping. A catalog of resource materials is available on request.

Rhiannon: Computer Games for Girls. 3717 Titan Drive, Richmond, VA 23225. (804) 272-7770.

A source of well-done nonviolent software.

Spinnaker Software. 215 First Street, Cambridge, MA 02142. (617) 868-4700.

A source of well-done nonviolent software.